The Map Modernization Program

Business Case Plan

For the
State of Utah

Department of Public Safety
Division of Emergency Services

Floodplain Management Office

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FLOOD MAP MODERNIZATION

State Business Plan

UTAH

I. What is Utah's Vision for supporting Multi-Hazard Flood Map Modernization (Map Mod)?

Utah's vision of supporting the Map Modernization Program is to act as the Mapping **Program Administrator/Project Manager** and manage the flood hazard mapping activities for the State of Utah. This will involve overseeing the hiring and management of contract engineers, development of timelines and schedules, organizing meetings and promoting meeting and the delivery of final flood mapping products. The CAP Coordinator will provide a program management structure that motivates partners to share responsibilities and costs and also aligns partner missions to produce quality flood hazard mapping in the State of Utah in a timely manner.

a) **What are Utah's current mapping efforts? -** Utah's current mapping efforts consist of supporting FEMA's mapping projects through the coordination of meetings, attending all meetings, resource of information to contractor, resource to community on map status, ordinance updates and technical assistance.

b) **How is the flood hazard data currently stored?** - Utah's flood hazard data is mostly on hard copy maps. Only Salt Lake County and portions of Utah County have a DFIRM. Maps have been stored on CD as tiff files, however updates to these CD's are slow and the paper maps are still the most up-to-date.

c) **What is Utah's current flood hazard mapping status?**
Utah's flood hazard mapping consists of projects managed by FEMA Region VIII. There are numerous studies "in progress." The FY03 Map Mod money went to these "in progress" studies to finish studies that were already underway. FY03 funds were dedicated to complete a study in Utah County studying three streams. This study was also managed by FEMA but involves the State Utah CAP as a partner in the coordination of this study. FEMA Region VIII selected the contractor as part of the ID/IQ list of contractors.

The State of Utah currently does not have its own flood hazard mapping program. The CAP Coordinator has supported the mapping efforts of FEMA Region VIII in communicating with the community and the project engineer to better coordinate and facilitate the sharing of information and meeting arrangements. This Map Mod Program will be an opportunity to get more flood hazard mapping completed in Utah.

d). **What does Utah want to achieve in the Map Mod Program?**
Utah wants and needs more accurate and timely floodplain mapping that is managed by the state. Through the Map Modernization program, the State of Utah can be an effective partner in this goal.

The use of GIS mapping technology is always a priority and an integral part of the mapping process. Our main focus will be on providing new detailed mapping to the many critical areas in this state where approximate flood zones currently exist. Many communities in Utah do not have the capability to view and use digitized floodplain

maps, but they are in need of detailed mapping accurately depicting the 100-year base flood. Utah's goal is to provide the "**highest quality possible**" in this mapping program where all partners are satisfied with the finished product.

e). **Utah's State Plans** – In 2002, Utah prepared a Map Modernization Implementation Plan (attachment A) for the State outlining Utah's mapping priorities and floodplain mapping needs. This Plan details the types of map upgrades needed by each community in the state and outlines the upgrades needed to reinforce the NFIP goals and purposes. This plan also discusses the cost associated with some of the needed mapping. During a three-year performance period, it is estimated that mapping will exceed $4 Million dollars.

II.) What are Utah's Needs and Plan/Strategy (for a 5-Year period)?

The floodplain maps in Utah are some of **the oldest maps in the Country**. Approximately 25% of the maps are 20+ years old. Over 40% of the map panels have never been printed. Around 30% of the state has never been mapped for flood hazards. Salt Lake County accounts for the 1% that has had maps printed since the year 2000 and is really the only county to receive recent mapping. There are many areas that are seeing **significant development** that do not have accurate floodplain maps or any mapping at all. Utah's average age of Flood Insurance Rate Maps is **15 years** or older. In many cases, the older maps reflect outdated flood hazard information that limits their utility for insurance and floodplain management purposes.

The mapping situation in Utah is in **severe need** of attention. Utah is the **4th fastest growing state in the Country.** Yet our communities are plagued with inaccurate flood mapping. Communities are trying to regulate development using flood maps that barely show main streets and floodplains that don't exist and new floodplains that aren't mapped. It is difficult for these local administrators to make wise floodplain management decisions with these archaic tools.

In 2002, Utah developed a **Map Modernization Implementation Plan** for the State (attachment A) detailing Utah's need for new and more accurate flood hazard mapping. Utah will use this plan, as it will be a useful tool in formulating and initiating future flood mapping endeavors. The plan implementation process will receive the highest priority and will allow Utah to effectively mitigate and identify flood hazards statewide. This plan identifies needs and creates a framework to coordinate flood mapping efforts and monitor its progress.

(1) What Activities will the Utah CAP MAP Manage?

Under the Utah CAP, the program administration and project management for the mapping activities will be coordinated by the CAP Coordinator with help from the State Hazard Mitigation Officer. The management activities will include:

- managing a program consisting of multiple flood mapping projects
- overseeing contractors for the development of new floodplain mapping
- creating and fostering partnerships with other interested state agencies
- studying and producing of digital flood hazard mapping
- hiring of independent review of hydrologic and hydraulic activities
- ensuring the maps meet FEMA technical standards
- overseeing agreements and timelines
- developing and disseminating outreach material
- hiring of mapping program coordinator

(2) How will Utah's mapping program achieve the goals listed in the Multi-Hazard Flood Map Modernization Objectives?

(a) (i). maintain a premier data collection and delivery system.

▫ The State's **Automated Geographic Reference Center (AGRC)** will store and provide access to all maps that are produced under the Map Mod program for the State of Utah. Additional servers may be needed to house and maintain these maps. AGRC will be a partner in this program and take on the responsibilities of being the primary repository of the digital data. AGRC has the program **ARC-IMS** which is an Internet based map storage system. Floodplain delineations will be stored as ArcView layers that will be accessible by the public over the Internet from AGRC. The DFIRM layers prepared by outside contractors will be projected to a geographic coordinate system that is **compatible** with the other base map layers provided by AGRC. Layers can be downloaded from the web page or will be provided on CD by request. This activity will be initialized in year one and continue annually. This will provide easy access by the user community to flood hazard data and other data to support risk management.

▫ Currently AGRC houses many interactive maps and coordinates with many state agencies to compile and store these maps. The "ground-work" has been done to allow multiple participants to use and contribute data. AGRC has set a system that is **easy to use**, **flexible** and **adaptable** allowing for future technological advances and enables the archiving of historical data and efficient data storage and retrieval. Their system will allow accessibility from many applications and users while ensuring information accessible through the system meets national standards with appropriate **security**.

(ii) Achieve effective program management.

▫ The Utah CAP proposes to have the **maximum level of participation** in this program. It will manage all of the mapping activities for the state. Identified in the **2002 Map Modernization Implementation Plan** (see Attachment A) for the State of Utah, mapping priorities have already been established. Those priorities will be reevaluated and better detailed as funding becomes available and communities wish to participate in the identified mapping activities. The reevaluation of the plan will occur regularly and will better define the program management goals and mapping activities.

▫ Utah CAP will be the **lead agency** in the state's efforts to support and participate in FEMA's Map Mod Program.

▫ Utah CAP has developed an **approved list of engineering firms** and will use this list to subcontract for assistance in conduct and/ or assisting in the collection of field data, modeling, conducting studies and reviewing studies.

▫ The Mapping Administrator/ Project Manager (Utah CAP) will ensure **quality**, **timeliness** and **delivery** within **pricing constraints**, continuously **monitor** and **track progress** by regularly disseminating **reports**, and provide a **reliable performance management** system.

(iii) Build and maintain mutually beneficial partnerships.

▫ The Utah CAP will develop a **Flood Mapping Resource Board** to reduce redundancies and maximize the usefulness and efficiencies of partner contributions. This Board will meet regularly to foster **partnerships**, share information, and review mapping data.

▫ This Board will be comprised of various federal, state, and local agencies interested in floodplains, wetlands, resource coordination, mapping, water resources, etc. These partnerships will achieve **shared outcomes** through mentoring and assistance, ensuring reliable and usable data, accessible for widespread use, and will **reduce redundancies** in all programs involved.

(iv) Expand and better inform the user community.

▫ Utah is committed to providing **enhanced communication** to the user community. Through the development of brochures, newsletters, websites, and meetings, the community will be better informed of all aspects of floodplain mapping, NFIP regulations, and available products and services.

▫The Utah High and Dry **newsletter** will provide map modernization information updates to a wide audience including federal, state, local agencies as well as engineers, contractors and consultants. This newsletter is a committed activity under the CAPSSSE grant agreement plan with FEMA.

▫ **The Utah Floodplain and Stormwater Management Association** will provide the venue for workshops and technical sessions for the purpose educating partners on the various aspects of floodplain mapping. The conferences held by the UFSMA, will allow for information to be disseminated to local floodplain administrators, contractors, consultants, state agencies, federal agencies and engineers.

▫ A **webpage** will be designed to update and inform the user community of map studies status, map mod initiatives and state mapping priorities. This webpage will link to the new mapping products (DFIRMs).

(b). For each program administration and management activity identified, describe your staff capabilities, existing resources, and training needs

▫ **Staffing** will be expanded as funding becomes available. Currently, there is limited staff to implement the Map Mod Program. DES currently has two GIS Specialists on staff that will assist in the coordination of GIS

flood mapping activities. With additional funding, the state will hire one FTE as a Mapping Coordinator and hire a contract engineer for quality assurance and independent review. The CAP Coordinator will oversee this program as well as the CAPSSSE Program. The Mapping Coordinator will be responsible for managing the mapping activities.

▫ **Resources** will be developed and maintained through **proactive agency coordination**. Utah has developed partnerships with numerous other state, federal and local agencies that will act as great resources to the Map Mod Program. Below are listed some of the agencies and committees Utah DES will work with in coordination of this program:

- Division of Water Resources
- Dept. of Natural Resources
- Automated Geographic Reference Center
- Army Corps of Engineers
- Utah Department of Transportation
- Association of Governments
- Resource Development Coordination Committee
- River Basin Coordination Committee
- State Hazard Mitigation Team
- Utah Floodplain and Stormwater Management Association (UFSMA)

▫**Training**

Training is needed in ARC-GIS and ARC-IMS. One class is offered this February. The Utah CAP Coordinator and the Utah SHMO will be taking this class to better understand the digital mapping tools. Other training in project management and FEMA Mapping process will be needed. The Utah CAP Coordinator and SHMO have taken the CTP course. Additional GIS training will also be made available to DES GIS Specialists. These training courses will enhance the capabilities of the Utah Mapping program to be an effective and valuable partner in the mapping process.

Based on funding levels, DES will conduct and sponsor training. Training will occur on a yearly basis. The intention of the training is to educate partners on the Map Mod Program and FEMA's mapping process.

(c). What are the existing shortfalls (staffing or other resources)?

The Utah CAP is located in the **Division of Emergency Services** and does not have engineering staff available. However, we have access to **engineers** and **hydrologist** through the Department of Natural Resources and private contractors.

A percentage of the funding will be used for administration of the grants. This will vary depending on the funding level.

(d). How do other plans in Utah relate to the Map Mod Objectives?

The **Envision Utah** Public/Private Partnership was formed to guide the development of a broadly and publicly supported Quality Growth Strategy - a vision to protect Utah's environment, economic strength, and quality of

life for generations to come. Five years of scenarios analysis, research and public involvement have helped Envision Utah bring the topic of planning and preparing for growth to the forefront of the public mind. The Envision Utah's document discusses the NFIP goals and FEMA's Flood Insurance Rate Maps. It also lists strategies for flood-prone areas listing restriction of fill as a primary strategy. Although Envision Utah does not name the Map Mod Program, the program goals are similar to each other in that both programs are **developing urban planning tools for quality growth**. The Map Mod definitely has developed goals to protect structures from recurrent flooding by identifying those that are in floodplains through accurate mapping. As Utah continues to grow and develop in the outlying areas, accurate and timely mapping is a strategy that must be in the forefront.

(e). What mapping projects will be initiated this year?

Depending on funding levels, the first year mapping projects will include **Davis County** and **Cache County**. Davis County has one major canyon that has not been studied. Development continues to occur on this alluvial fan as homes encroach the canyon's floodplain. Currently it is an approximate A zone. A detailed analysis is needed for this area. Other map maintenance is needed including incorporating LOMRs into a PMR and boundary changes. Approximately 36 panels are in need of some mapping. An estimated cost of $517,000 is needed to complete the map studies for this county.

Cache County will require some H & H be completed. Most of the developed area is an approximate A zone with a one inch=2000 mile scale. A detailed study is needed along the US89/US91 corridor to allow the county to make sound floodplain management decisions. Approximately 12 panels need to be restudied. An estimated cost of $350,000 is needed for this county.

As more funding becomes available, **Tooele County** will be added. Development is quickly occurring in this County. Currently, most of the county is a D zone. There are flood hazards that need to be identified and homes that need to be protected by flood insurance.

The 2002 Map Modernization Program Plan for the State of Utah **further identifies the priorities** for the mapping projects for future years. Please refer to that plan for a more detailed analysis of Utah's mapping priorities.

(3) **What is Utah's Project Management Plan**

Each planning activity will follow a 12-step process to flood mapping that will improve productivity by reducing the number of hours spent, enabling faster response to special problems, maintaining an accurate and thorough contracting and invoicing history of all study contracts and providing a uniform and timely report of the status of contracts across the state.

1. **Selection Process**

   Adjusting study priorities may occur due to funding limitations. Once a community is selected then a meeting will occur with the State and

the local communities. Discussion of mapping areas and local matches will occur at this initial meeting.

2. **Contractor Selection Process**
   Contractors will be chosen based on qualifications and have been selected in coordination and compliance with the State procurement procedures. The State in conjunction with the local communities involved will select the contractor for the study.

3. **Time and Cost Meeting**
   Meeting at the community with the State and the contractor who will be doing the study. Purpose of this meeting is to define the scope of work, find available data, and do a preliminary field study. Following this meeting, the cost of the study is negotiated and the contract is awarded.

4. **Study Begins**
   Tasks are identified and study responsibilities are detailed. Once the data is completed, it is submitted to the locals and State for review. An independent contract engineer (hired by the state) reviews material and reports any special problems.

5. **Hydrology review meeting**
   The purpose of this meeting between the State and locals is to review the initial hydrology data. This meeting occurs 4-6 months after the study has begun. An independent contract engineer (hired by the state) reviews material and reports any special problems.

6. **Intermediate Meetings**
   This takes place once the hydraulics draft is completed, approximately 3-4 months after the hydrology review meeting. This meeting is with the communities, contractor, State, Engineer.

7. **Study goes to Michael Baker Jr. Engineers**
   The map is reviewed by Michael Baker Jr. Engineers for accuracy

8. **Final Meetings/ Community Coordination Meeting**
   Preliminary study is presented to the community. The purpose of this meeting is to answer any questions they may have, as well as to make sure they understand it is the responsibility of the community to verify street names and accuracy of the map in this regard. This meeting occurs one month after Baker has completed their review.

9. **Public Notice**
   Notice of where the public can review the preliminary map must be published for two weeks.

10. **Appeal Process**
    With specific data that substantiates a change, the preliminary map may be appealed.

11. Compliance Period

The community has up to six months to modify their floodplain ordinance to reflect the new map.

12. New Map is Printed

Often times the new map can be printed during the compliance period.

There will be other coordination not specified in these 12 steps. Numerous emails, web page postings, budget tracking, filing of special problems reports and other coordination meetings will be held as needed. Since the contractor and project manager will all be in Utah, it will be easier to hold a meeting in a short time frame.

ii) **Utah's project timelines?**

As outlined above, the time frame will vary in accordance to the detail of study needed. Some mapping projects may take longer than others. Special problems may delay the study further. **Funding issues** may also delay study deadlines. The goal is to have detailed studies completed in **36 months**. Davis County could be done in that time frame due to available data and resources at the local level. Cache County may take longer due to terrain and few existing resources.

iii) **Resources/Staffing** (state, local, federal, contractor)

Resources have been discussed in section **II.2.b**.

Staffing has been discussed in section **II.2.b**.

iv) **Deliverable(s**)

Maps will be delivered in required digital format under the specs in *FEMA 137 Guidelines and Specifications for Flood Hazard Mapping Partners*. Deliverables will be tracked and will be submitted in a timely fashion.

v) Reporting

Reporting will be completed quarterly on each mapping activity. Reports will be sent to FEMA Region VIII. Updates on the mapping progress will be posted monthly on the state's mapping website.

vi) Quality assurance

An **independent review** by a hydrologist will assure the quality of the engineering completed for each mapping activity. A resource board may also review the data for correctness.

III). Performance Goals/Cost and Schedule Measures (tracking)

1. Each project will have its own needs and reporting requirements will reflect those needs. This is all dependent on the scope of work of the individual project. Each project will be measured on the following four categories:

Baseline
Benefits
Accomplishments
Product

- FEMA will provide a web-based system for tracking and reporting cost, schedule and performance. Describe how you will ensure that this system is supplied with required information.

It will be a requirement of the contractor to supply this information to the State.

IV). Alternatives/Varying Funding Levels

1. Given the following alternative funding levels, describe federal funding, state/locality/partner funding, and performance over a 5-year period:

a. **Full** - Utah is expecting full funding from FEMA for the Map Mod Program. Any match will be generated at the local level during the initial project coordination meeting. As funding levels fluctuate, projects will be adjusted accordingly.

b. **Medium** – There will be limited mapping projects if the funding is reduced. Mapping projects will be reevaluated and aligned with funding.

c. **Low** –There will be limited mapping projects if the funding is reduced. Mapping projects will be reevaluated and aligned with funding.

2. State or Locally Funded

There are **no state or locally funded mapping activities** that do not require Federal funds.

3. Explain how FEMA funding will fill the shortfalls identified in Section II. FEMA funding is necessary for an effective flood mapping program in Utah. Local flood mapping partners will contribute at a level that is appropriate for their community and according to the amount of Federal dollars that are committed to each project.

4. Explain how the State/local match, where applicable, will be provided.

- The State match is a soft match.
- The local match will be generated at the local level during the initial project coordination meeting.